

Remarks

Reconsideration of the above referenced application in view of the enclosed amendment and remarks is requested. The TITLE is amended at the Examiner's request to make it more descriptive of the claimed invention. The Specification is amended to identify the serial number of the related application. Claims 1, 2, 8, 14, 16, and 20 have been amended. Existing claims 1-25 remain in the application.

ARGUMENT

Claims 1-25 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-28 of USPN 6,990,577 to Autry (hereinafter, "Autry"). This rejection is respectfully traversed based on the following discussion.

Autry describes and claims a system that retrieves a replacement BIOS image from a floppy disk (Col. 2, lines 47-50). The advantages of the invention claimed by Autry enable a portion of the BIOS to be replaced in system so that configuration data in the BIOS need not be reset. In existing systems, a replacement of the BIOS image would have changed all of the configuration information. While this is a valuable invention, it is not related to the invention as claimed by Applicants, nor does it render Applicants' claims obvious.

The Examiner admits that Autry does not mention the use of a baseboard management controller (BMC), but that "the usage of a baseboard management controller is well known in the art." Regardless of whether systems utilize BMCs, the Examiner has not shown that there is any suggestion in Autry or any other prior art that use of a BMC could be combined to result in Applicants' invention.

Further, Autry discloses and claims a system where the host processor retrieves the replacement BIOS image from a floppy disk. Another embodiment uses a "program" loaded on the hard drive to upgrade the system BIOS. While Autry is silent as to whether the BIOS or operating system (OS) actually performs the upgrade, it is certain that the host processor performs the operation. Further, at no time does Autry describe or suggest that the *firmware image for server management operational code in a recipient system needs to be replaced*. It will be apparent to one of skill in the art that "server management operational code" means the

code running on the non-host processor to perform server management. The Background section of the Specification clearly describes:

“[0004] The BMC includes a processor having its own “boot” code and “operational” code, typically stored in flash memory. The operational code defines what functions are available to be managed via the OOB connection. The operational code typically provides the interfaces for monitoring the server’s health and chassis control. If the BMC operational code becomes corrupted, it will be difficult or impossible to manage the server via the OOB connection. The system may continue to operate with corrupted operational code, but the server management tasks may not work properly and the system typically cannot be turned off without the BMC functioning. Occasionally, it is also desirable to update the operational code with added, deleted or modified functionality, even if the code has not been corrupted.” [emphasis added]

In the Detailed Description [0010], it is clearly described that “[w]hen a server equipped with a baseboard management controller (BMC) boot code detects that its operational code image (opcode) is corrupted or the operational code detects that the opcode is out of date, the BMC broadcasts a request for an image update.” Thus, even if read broadly, it will be apparent from the description of “operational code” in the Specification, that the code that is to be updated from a donor system is code for the server management, and not the BIOS for the host processor. Autry does not teach, describe or claim this type of update.

Moreover, Autry describes and claims a system that retrieves a BIOS image from a known location, i.e., a floppy drive. In contrast, Applicants’ claimed invention first determines whether the operational code needs to be replaced. Then a message is sent over a network to begin negotiating with a donor system to find a compatible image, using a pre-existing policy to select the donor system. Autry neither claims nor describes a system that uses policy to retrieve an operational image over a network from a plurality of systems. Autry merely load a BIOS image from a floppy.

The Examiner fails to cite a specific portion of the IPMI document or the Lancewood Server, BMC document that shows negotiation with a plurality of servers to retrieve a compatible operational code image to update the BMC. The fact that BMC’s exist on servers and use IPMI protocol to communicate with the host processor is not enough to suggest that Applicants’ claimed invention would be rendered obvious. The Examiner asserts that “it would be obvious to one of ordinary skill in the art to include the concept of using the controller with the claimed subject matter of the claims of Autry...” [emphasis added] However, this assertion

begs the question. Autry does not disclose that the upgrading of operational code is to be performed at all. Autry only teaches updating a portion of a BIOS image for the host processor. Further, Autry's claims recite only receiving the BIOS image and explicitly state in claims 5 and 28 that "wherein the receiving comprises: storing the first basic input/output system image in a system memory of a computer system." Autry discloses in the specification only that the replacement BIOS image is retrieved from a floppy disk. Thus, even a combination of Autry with known features of BMC and IPMI will not make Applicants' claimed invention obvious.

Claims 1-25 are also provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-37 of co-pending U.S. Pat. Appn. No. 10/821,037, by the same authors (hereinafter, "the '037 appl."). This rejection is respectfully traversed based on the following discussion.

The '037 appl. is somewhat related to the present invention in that they both involve updating firmware code, but is believed to be patentably distinct. The present invention is directed toward updating the image of the operational code for server management, residing on a non-host processor of the system. The '037 appl. is directed toward an automatic firmware update proxy for a server BIOS Image, where valid BIOS images are retrieved over a network, and updated by an independently operating baseboard management controller. Thus, in an embodiment, the present invention is directed toward updating the operational code on the BMC, and the '037 appl. is directed toward using the BMC to update the BIOS image on the host processor.

As the two inventions result in updating of different types of code on different processors in the system, as well as, potentially effecting the update using different processors, the claimed inventions are patentably distinct. In other words, the server management operational code is not the same thing as a firmware image for a BIOS. Thus, the provisional double-patenting rejection should be withdrawn.

Claims 1-25 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. This rejection is respectfully traversed and Claims 1-25 are believed to be statutory, and allowable, based on the foregoing and following discussion.

The Examiner asserts that Claim 1 and its dependent claims do not produce a concrete and tangible result because the determining step does not produce a concrete and tangible result. Applicant respectfully disagrees. The Examiner asserts that “a step of determining that a firmware image for server management operational code in a recipient system needs to be replaced” is “not a concrete step until the firmware image is actually replaced. This is faulty reasoning. The step of *determining* is important to the claimed invention because unless an image is determined to require replacement, nothing will be performed. The Examiner is twisting the rule for a claim to produce a “concrete and tangible result.” As described in the specification, the operational code image will be replaced, when necessary. Thus, it must be determined when it is necessary, and when it is not necessary to replace the image. It will be apparent to one of ordinary skill in the art after reading Applicant’s disclosure the determining step is just one feature of the claimed invention.

Moreover, there is no *requirement* that there be a concrete and tangible result at *each and every step or element* of the claimed invention. This requirement doesn’t even make sense for non-method claims. The Examiner is confusing the doctrine of showing that the entire claim produces a useful, concrete and tangible result. Applicants’ invention does indeed meet this requirement. For instance, Claim 1 recites “*updating the recipient system firmware with the uploaded compatible image.*” Similarly, Claims 8, 14, 16 and 20 all recite either loading the replacement image onto the recipient system, or loading and updating the firmware of the recipient system. Anyone having even minimal skills in the subject art will understand that loading an image onto a system or actually updating the system are useful, concrete and tangible results of the claimed invention. Therefore, Applicants respectfully request that this rejection be withdrawn.

Claims 1 and its dependent claims are rejected under 35 U.S.C. § 112, first paragraph as based on a disclosure which is not enabling. This rejection is respectfully traversed and Claims 1-25 are all believed to be enabled by the specification, and have no missing essential elements in the claims.

The Examiner’s argument is perplexing in that the Examiner cites description in the specification for elements of the claimed invention and then also says that the elements are not

enabling or are not included in the claims. It is not clear from Examiner's argument what is alleged to be missing or non-enabled.

Claim 1 recites:

*“A method for automatic firmware image recovery, comprising:
determining that a firmware image for server management operational code in a recipient system needs to be replaced;
sending a message over a network by the recipient system, wherein the message requests a compatible replacement firmware image;
negotiating with a donor system based on a received acknowledgement that the donor system has a compatible image, using a predetermined policy to select the donor system from a set of at least one donor system having a compatible image;
uploading a compatible image sent by the donor system to the recipient system;
and
updating the recipient system firmware with the uploaded compatible image.”*

The element of *determining* is described at [0014] where “it is determined that the operational firmware image on server A 110a is invalid or corrupted.” It will be apparent to one of skill in the art that various methods may be used to reveal that the operational firmware image is corrupted. For instance, a failure on boot of the BMC is indicative of this. Thus, this element is enabled sufficiently to one of skill in the art.

The element of *sending a message over a network* is also described, at least at [0014]. When the system is aware that it needs a replacement or updated image, it sends a message requesting one, to the network. Once the system has requested a new image, it *negotiates with the donor system* in order to receive a compatible image, based on system policies. Para. [0017], at least, describes the negotiation, as well as policies that may dictate from which donor system an image should be retrieved.

Once negotiated, a compatible image is sent from the donor system and then the recipient system is updated with the uploaded image. This is described, at least, in para. [0022].

While it is unclear what the Examiner is objecting to, Applicants believe that the Examiner asserts that the actual “selection” of the donor system is essential to the practice of the invention and neither claimed nor described. This assertion is in error. In para. [0017], at least, Applicants describe that:

“In another embodiment, there is a policy on the corrupted machine to decide with whom to negotiate. The policy will typically pick the best match. It will be

apparent to one of ordinary skill in the art that there are multiple ways to implement this. In one embodiment, the recipient system may want to accept a previous version of the operational image because a version update is what corrupted it. This preference may be configured as a policy.”

As described, it is believed that anyone of ordinary skill in the art, after reading the detailed description of the claimed invention, will understand that the system policy dictates the negotiation and selection of a donor system. As recited in the claim, the negotiation process uses the predetermined policy to select the donor system. This element is clearly recited in the claim as part of the negotiation. Thus, the Examiner’s assertion that it is not claimed, is in error. In para. [0021] it is also described that in an embodiment, during the negotiation, the “donor system may compare policy parameters to determine if it is the preferred provider of the operational image.” It is also described that in “one embodiment, an offer from a management console will be accepted ahead of all other offers. In another embodiment, an offer of a more recent version is preferred, and multiple donors with the same version may be chosen based on proximity to the recipient system. It will be apparent to one of ordinary skill in the art that a variety of policies may be implemented on one or both of recipient and donor system.”

Thus, Applicants contend that the selection of the donor system is indeed recited in the claims, as explicitly being part of the negotiation. Applicants also contend that one of ordinary skill in the art would understand how to implement a system policy for donor system selection, based on the description in the application as originally filed. Therefore, this rejection should be withdrawn.

Similarly, Claims 8, 14, 16 and 20 all recite negotiating with the donor server to receive a compatible image. As described in the specification, the negotiation includes the selection of a donor server, and the selection and policy criteria is discussed, as well.

The Examiner asserts that the recitation of a “proxy” is essential to Claim 16. However, it is unclear what the Examiner is suggesting, as the term “proxy” is not used anywhere in the description of the claimed invention. Thus, since it is not described, it would be improper to claim a “proxy.” Further, the Examiner has not made it clear what this “missing proxy” is to mean, in the context of the present invention. While the term proxy is used in related application

10/821,037, it is not relevant to the presently claimed invention. Therefore, as the Examiner has not pointed out explicitly what is objected to, this rejection should be withdrawn.

Claim 1 is rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which application regards as the invention. This rejection is respectfully traversed and Claims 1-25 are believed allowable based on the foregoing and following discussion.

The Examiner asserts that negotiating is contrary to an acknowledgement received by the recipient system from the donor system. This assumption is incorrect. As described by Applicant, there may be more than one donor system on the network that has a compatible image. The recipient system used a predetermined policy to select the donor system from which the compatible image is to be received. If two or more donor systems acknowledge that they have a compatible image, the recipient system may ignore all but one of the acknowledgements and continue to negotiate with only the one selected donor system. In an embodiment, the recipient system may actually pro-actively reject an acknowledgement. The “negotiation” continues because, as is known in the art, a transfer protocol used over the network will almost universally require packets of information send from the donor system and an acknowledge that the packets were received intact by the recipient system. The actual protocol used may to transfer the data may vary upon implementation, and is not an essential step of the claimed invention. It will be clearly understood by those of skill in the art, that just because one of the set of donor systems having a compatible image sends an acknowledgement, it is not certain that the desired firmware image will be downloaded from that particular system. The recipient system determines which donor system is to be used, and selects that system using the predetermined policy. Only the selected donor system will continue to be negotiated with. Thus, Applicants believe that the description is accurate and complete and that the recited claims are definite. Therefore, this rejection should be withdrawn.

The Examiner objects to the use of the term “a set of at least one donor system having a compatible image,” and asserts that a “set” is contrary to the term “at least one.” Without insulting the Examiner with a tutorial of set theory, it should be noted that it is widely

understood that a “set” may contain zero, one or many items. For evidence of use of this terminology, Applicants performed a search of the terms “empty” and “set” at google.com and the search engine returned 98,000,000 items. A search of the quoted term of “empty set” returned 1,590,000 items. Thus, the term “a set of at least one” is consistent with set theory, and is similar to the term “at least one.” Therefore, this rejection should be withdrawn.

The Examiner further objects to the term “compatible” in Claims 1, 8, 14, 16 and 20 and their dependent claims, as being a relative term. This assertion is ludicrous. It will be apparent to one of ordinary skill in the art, that a finite number of criterion define whether an image is compatible with a system. Hardware configuration and user/administrator defined parameters, as well as the predetermined policy will dictate whether an image is compatible. Para. [0014] describes an embodiment where the recipient system sends a message requesting a compatible image. It is described that:

“The message typically includes data identifying the requesting server (recipient) which may include the server’s IP address and/or a digital signature, the version of firmware image requested and server type. In some embodiments, the recipient server may also send other information such as to identify the existing problem, an identifier for a preferred donor, and/or authentication information.”

It should be well understood that a server type and firmware image version will distinctly identify whether an image on the donor system is compatible with the hardware of the recipient system. However, it will also be understood that other criteria may be used by the recipient system to select a more compatible image based on predetermined policy – for instance, a preference for a specific donor, or identification that a problem exists with the most recent version and that a previous version is requested, etc. The term “compatible” is not indefinite, but may be defined more particularly, based on the system policy, as described in the specification. Thus, this rejection should be withdrawn.

Applicant thanks the Examiner for pointing out the duplication of the element of uploading in Claim 2. The uploading of Claim 2 is the same uploading of Claim 1. It was meant to show that the uploading was performed after the receiving and determining, etc. Claim 2 has been amended to indicate the temporal performance of the claimed elements.

The Examiner asserts that Claim 16 recites the limitation “automatic firmware image update proxy.” However, Claim 16 does not recite this limitation. Applicants believe that the Examiner has mistakenly looked at the claims in co-pending U.S. Appn. Ser. No. 10/821,037 and used this claim language in the analysis. The present application does not describe or recite any sort of “proxy.” Therefore, this rejection must be withdrawn, as being totally irrelevant to Applicants’ claimed invention.

Applicants amend the recitation of “on the network” to “in the network” at the Examiner’s request. However, this amendment does not change the scope of the claimed invention as it is understood that those terms are interchangeable in the current vernacular.

Applicants amend the claims to recite “when the donor system” instead of “if the donor system,” in response to the Examiner’s objection to this terminology.

Applicants object to the Examiner’s broad refusal to consider “wherein” clauses to further limit the elements of the claims. Applicants contend that the use of the “wherein” in the recitation of the claims limits the structure, functionality or other key feature of an element. Applicants do not believe that any recited elements are “optional,” and respectfully request the Examiner to particularly point out any specific incidence of a *wherein* clause that is being ignored in the interpretation of the claim.

The Examiner has failed to provide *prima facie* evidence of obviousness or unpatentability. Applicants believe that all § 101 and § 112 rejections have been overcome by amendment or discussion. Therefore, Claims 1-25 are in condition for allowance and should be permitted to issue at the earliest time. Applicants also contend that any amendments made are merely for clarity, and do not change the scope or meaning of the claims, or require a further search. Therefore, if the Examiner should see fit to cite any other prior art in a new rejection, Applicants respectfully request a new non-final office action.

CONCLUSION

In view of the foregoing, Claims 1-25 are all in condition for allowance. If the Examiner has any questions, the Examiner is invited to contact the undersigned at (703) 633-6845. Early issuance of Notice of Allowance is respectfully requested. Please charge any shortage of fees in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-0221 and please credit any excess fees to such account.

Respectfully submitted,

Dated: 23-Jul-2007

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